Toxicology, 42 (1986) 337—341
Elsevier Scientific Publishers Ireland Ltd.

TOXICOLOGY

SUBJECT INDEX

Volume 42 (1986)

Accumulation
Salmo gairdneri, dithiocarbamates, zineb, ziram, 33
Acephate
methamidophos, organophosphates, acetylcholinesterase, 143
Acetylcholinesterase
acephate, methamidophos, organophosphates, 143
Acute toxicity
lead distribution, tissue segmentation, chronic toxicity, renal target, salivary gland target, 157
Aerosol generation
sodium dichromate, chromium(VI)/(III) oxide mixture, inhalation, rat, subclinical toxicity, primary lung tumors, 219
Antifertility
di(2-ethylhexyl)phthalate, testes, spermatogenesis, enzymatic changes, 47
Antinociception
irreversible anticholinesterase, opioids, rat paw pressure test, 275
Astroglia
oligodendroglia, meninges, Pb encephalopathy, cell culture, Pb uptake, 303

Benzo[*a*]pyrene
pseudopregnancy, methadone, reproductive effects, 195
Bladder hernia
mouse, neonatal exposure, tamoxifen, genital tract abnormalities, 1

Cadmium
glutathione, toxicity, hepatocytes, protection, 85
Cadmium
red blood cells, zinc, membrane transport, membrane sulfhydryle, 111
Cadmium
testis, liver, strain difference, essential metals, metallothionein, 121
Cell culture
astroglia, oligodendroglia, meninges, Pb encephalopathy, Pb uptake, 303
Chlordane
rotenone, stomach poison, gastric caecae, malpighian tubule, cyclodiene, 317
Chromium(VI)/(III) oxide mixture
sodium dichromate, aerosol generation, inhalation, rat, subclinical toxicity, primary lung tumors, 219
Chronic toxicity
lead distribution, tissue segmentation, acute toxicity, renal target, salivary gland target, 157
Copper
molybdenum toxicity, thiomolybdates, enzymes, 99
Crude oil
liver mitochondria, electron transport chain, oxidative phosphorylation, inhibition, 131
Cyclodiene
chlordane, rotenone, stomach poison, gastric caecae, malpighian tubule, 317
Cysteine
glutathione, reduction, vanadate, 281
Cytochrome *P*-450
primaquine, haem metabolism, microsomal mixed-function oxidases, drug oxidation, 205

4,4′Dichlorobiphenyl
enzyme induction, phenacetin O-de-

ethylation, glutathione depletion, liver, rat, 259
Dithiocarbamates
Salmo gairdneri, accumulation, zineb, ziram, 33
Di(2-ethylhexyl)phthalate
testes, spermatogenesis, antifertility, enzymatic changes, 47
Dopamine agonism
embryotoxicity, teratogenicity, dopamine antagonism, pimozide modification, 291
Dopamine antagonism
embryotoxicity, teratogenicity, dopamine agonism, pimozide modification, 291
Drug oxidation
primaquine, haem metabolism, microsomal mixed-function oxidases, cytochrome *P*-450, 205

Eggshell thinning
lindane toxicity, estrogen deficiency, hatching success, scanning electron microscope studies of eggshell, hypocalcemia, 245
Electron transport chain
crude oil, liver mitochondria, oxidative phosphorylation, inhibition, 131
Embryotoxicity
teratogenicity, dopamine agonism, dopamine antagonism, pimozide modification, 291
Enzymatic changes
di(2-ethylhexyl)phthalate, testes, spermatogenesis, antifertility, 47
Enzyme induction
4,4′-dichlorobiphenyl, phenacetin O-deethylation, glutathione depletion, liver, rat, 259
Enzymes
molybdenum toxicity, thiomolybdates, copper, 99
Enzymuria
ochratoxin A, renal tubules, rats, nephrotoxicity, phenylalanine, 233
Essential metals
cadmium, testis, liver, strain difference, metallothionein, 121
Estrogen deficiency
lindane toxicity, eggshell thinning, hatching success, scanning electron microscope studies of eggshell, hypocalcemia, 245
Estrogenic activity
zearalenone, in vitro, metabolism, hepatocytes, rabbits, hens, 69
Ethylmorphine
morphine, hepatocytes, glutathione depletion, glutathione conjugates, 13

Gastric caecae
chlordane, rotenone, stomach poison, malpighian tubule, cyclodiene, 317
Genital tract abnormalities
mouse, neonatal exposure, tamoxifen, bladder hernia, 1
Glutathione conjugates
ethylmorphine, morphine, hepatocytes, glutathione depletion, 13
Glutathione depletion
4,4′-dichlorobiphenyl, enzyme induction, phenacetin O-deethylation, liver, rat, 259
Glutathione depletion
ethylmorphine, morphine, hepatocytes, glutathione conjugates, 13
Glutathione
cadmium, toxicity, hepatocytes, protection, 85
Glutathione
cysteine, reduction, vanadate, 281

Haem metabolism
primaquine, microsomal mixed-function oxidases, cytochrome *P*-450, drug oxidation, 205
Hatching success
lindane toxicity, eggshell thinning, estrogen deficiency, scanning electron microscope studies of eggshell, hypocalcemia, 245
Hematopoietic toxicity
in utero benzene exposures, 171
Hens
zearalenone, in vitro, metabolism, hepatocytes, estrogenic activity, rabbits, 69
Hepatocytes
cadmium, glutathione, toxicity, protection, 85
Hepatocytes
ethylmorphine, morphine, glutathione depletion, glutathione conjugates, 13
Hepatocytes
zearalenone, in vitro, metabolism, estrogenic activity, rabbits, hens, 69

Hypocalcemia
lindane toxicity, eggshell thinning, estrogen deficiency, hatching success, scanning electron microscope studies of eggshell, 245

In utero benzene exposures
hematopoietic toxicity, 171
In vitro
zearalenone, metabolism, hepatocytes, estrogenic activity, rabbits, hens, 69
Induction
D-penicillamine, metallothionein, rat liver, 23
Inhalation
sodium dichromate, chromium(VI)/(III) oxide mixture, aerosol generation, rat, subclinical toxicity, primary lung tumors, 219
Inhibition
crude oil, liver mitochondria, electron transport chain, oxidative phosphorylation, 131
Irreversible anticholinesterases
opioids, antinociception, rat paw pressure test, 275

Lead distribution
tissue segmentation, acute toxicity, chronic toxicity, renal target, salivary gland target, 157
Lindane toxicity
eggshell thinning, estrogen deficiency, hatching success, scanning electron microscope studies of eggshell, hypocalcemia, 245
Liver mitochondria
crude oil, electron transport chain, oxidative phosphorylation, inhibition, 131
Liver
4,4′-dichlorobiphenyl, enzyme induction, phenacetin O-deethylation, glutathione depletion, rat, 259
Liver
cadmium, testis, strain difference, essential metals, metallothionein, 121
Lysosomal enzymes
T-2 toxin, xenobiotic metabolizing enzymes, rat liver, 77

Magnesium acetate
nickelous acetate toxicity, nickel/magnesium interactions in vivo, nickel pharmacokinetics, 57
Malpighian tubule
chlordane, rotenone, stomach poison, gastric caecae, cyclodiene, 317
Membrane sulfhydryle
cadmium, red blood cells, zinc, membrane transport, 111
Membrane transport
cadmium, red blood cells, zinc, membrane sulfhydryle, 111
Meninges
astroglia, oligodendroglia, Pb encephalopathy, cell culture, Pb uptake, 303
Metabolism
zearalenone, in vitro, hepatocytes, estrogenic activity, rabbits, hens, 69
Metallothionein
cadmium, testis, liver, strain difference, essential metals, 121
Metallothionein
D-pennicillamine, induction, rat liver, 23
Methadone
pseudopregnancy, benzo[*a*]pyrene, reproductive effects, 195
Methamidophos
acephate, organophosphates, acetylcholinesterase, 143
Microsomal mixed-function oxidases
primaquine, haem metabolism, cytochrome *P*-450, drug oxidation, 205
Molybdenum toxicity
thiomolybdates, copper, enzymes, 99
Morphine
ethylmorphine, hepatocytes, glutathione depletion, glutathione conjugates, 13
Mouse
neonatal exposure, tamoxifen, bladder hernia, genital tract abnormalities, 1

Noenatal exposure
mouse, tamoxifen, bladder hernia, genital tract abnormalities, 1
Nephrotoxicity
ochratoxin A, renal tubules, enzymuria, rats, phenylalanine, 233
Nickel pharmacokinetics
magnesium acetate, nickelous acetate toxicity, nickel/magnesium interactions in vivo, 57

Nickelous acetate toxicity
magnesium acetate, nickel/magnesium interactions in vivo, nickel pharmacokinetics, 57
Nickel/magnesium interactions in vivo
magnesium acetate, nickelous acetate toxicity, nickel pharmacokinetics, 57

Ochratoxin A
renal tubules, enzymuria, rats, nephrotoxicity, phenylalanine, 233
Oligodendroglia
astroglia, meninges, Pb encephalopathy, cell culture, Pb uptake, 303
Opioids
irreversible anti-cholinesterases, antinociception, rat paw pressure test, 275
Organophosphates
acephate, methamidophos, acetylcholinesterase, 143
Oxidative phosphorylation
crude oil, liver mitochondria, electron transport chain, inhibition, 131

Pb encephalopathy
astroglia, oligodendroglia, meninges, cell culture, Pb uptake, 303
Pb uptake
astroglia, oligodendroglia, meninges, Pb encephalopathy, cell culture, 303
D-Penicillamine
metallothionein, induction, rat liver, 23
Phenacetin O-deethylation
4,4′-dichlorobiphenyl, enzyme induction, glutathione depletion, liver, rat, 259
Phenylalanine
hydroxylase cofactor, tetrahydrobiopterin, toxicity, 183
Phenylalanine
ochratoxin A, renal tubules, enzymuria, rats, nephrotoxicity, 233
Pimozide modification
embryotoxicity, teratogenicity, dopamine agonism, dopamine antagonism, 291
Primaquine
haem metabolism, microsomal mixed-function oxidases, cytochrome *P*-450, drug oxidation, 205
Primary lung tumors
sodium dichromate, chromium(VI)/(III) oxide mixture, aerosol generation, inhalation, rat, subclinical toxicity, 219
Protection
cadmium, glutathione, toxicity, hepatocytes, 85
Pseudopregnancy
benzo[*a*]pyrene, methadone, reproductive effects, 195

Rabbits
zearalenone, in vitro, metabolism, hepatocytes, estrogenic activity, hens, 69
Rat liver
D-penicillamine, metallothionein, induction, 23
Rat liver
T-2 toxin, xenobiotic metabolizing enzymes, lysosomal enzymes, 77
Rat paw pressure test
irreversible anticholinesterases, opioids, antinociception, 275
Rats
ochratoxin A, renal tubules, enzymuria, nephrotoxicity, phenylalanine, 233
Rat
4,4′-dichlorobiphenyl, enzyme induction, phenacetin O-deethylation, glutathione depletion, liver, 259
Rat
sodium dichromate, chromium(VI)/(III) oxide mixture, aerosol generation, inhalation, subclinical toxicity, primary lung tumors, 219
Red blood cells
cadmium, zinc, membrane transport, membrane sulfhydryle, 111
Reduction
cysteine, glutathionine, vanadate, 281
Renal target
lead distribution, tissue segmentation, acute toxicity, chronic toxicity, salivary gland target, 157
Renal tubules
ochratoxin A, enzymuria, rats, nephrotoxicity, phenylalanine, 233
Reproductive effects
pseudopregnancy, benzo[*a*]pyrene, methadone, 195
Rotenone
chlordane, stomach poison, gastric caecae, malpighian tubule, cyclodiene, 317

Salivary gland target
lead distribution, tissue segmentation, acute toxicity, chronic toxicity, renal target, 157
Salmo gairdneri
accumulation, dithiocarbamates, zineb, ziram, 33
Scanning electron microscope studies of eggshell
lindane toxicity, eggshell thinning, estrogen deficiency, hatching success, hypocalcemia, 245
Sodium dichromate
chromium(VI)/(III) oxide mixture, aerosol generation, inhalation, rat, subclinical toxicity, primary lung tumors, 219
Spermatogenesis
di(2-ethylhexyl)phthalate, testes, antifertility, enzymatic changes, 47
Stomach poison
chlordane, rotenone, gastric caecae, malpighian tubule, cyclodiene, 317
Strain difference
cadmium, testis, liver, essential metals, metallothionein, 121
Subclinical toxicity
sodium dichromate, chromium(VI)/(III) oxide mixture, aerosol generation, inhalation, rat, primary lung tumors, 219

Tamoxifen
mouse, neonatal exposure, bladder hernia, genital tract abnormalities, 1
Teratogenicity
embryotoxicity, dopamine agonism, dopamine antagonism, pimozide modification, 291
Testes
di(2-ethylhexyl)phthalate, spermatogenesis, antifertility, enzymatic changes, 47
Testis
cadmium, liver, strain difference, essential metals, metallothionein, 121
Tetrahydrobiopterin
toxicity, phenylalanine hydroxylase cofactor, 183
Thiomolybdates
molybdenum toxicity, copper, enzymes, 99
Tissue segmentation
lead distribution, acute toxicity, chronic toxicity, renal target, salivary gland target, 157
Toxicity
cadmium, glutathione, hepatocytes, protection, 85
Toxicity
tetrahydrobiopterin, phenylalanine hydroxylase cofactor, 183
T-2 toxin
xenobiotic metabolizing enzymes, lysosomal enzymes, rat liver, 77

Vanadate
cysteine, glutathione, reduction, 281

Xenobiotic metabolizing enzymes
t-2 toxin, lysosomal enzymes, rat liver, 77

Zearalenone
in vitro, metabolism, hepatocytes, estrogenic activity, rabbits, hens, 69
Zinc
cadmium, red blood cells, membrane transport, membrane sulfhydryle, 111
Zineb
Salmo gairdneri, accumulation, dithiocarbamates, ziram, 33
Ziram
Salmo gairdneri, accumulation, dithiocarbamates, zineb, 33

Toxicology 42 (1986) 343–344
Elsevier Scientific Publishers Ireland Ltd.

TOXICOLOGY

AUTHOR INDEX

Volume 42 (1986)

Avrenyeva, L.I. 77

Baldwin, J. 291
Bogers, M. 33
Bracken, W.M. 111
Bratton, G.R. 303
Bui, Q.Q. 195

Chakravarty, S. 245
Combs, A.B. 183
Craan, A.G. 157
Creppy, E.E. 233

de Vries, J. 259
Di Lauro, F.M. 69
Dirheimer, G. 233

Eklöw-Låstbom, L. 13

Fadini, L. 69
Farrell, G.C. 205
Foirier, L.A. 57
Folkers, K. 183

Garty, M. 111
Glaser, U. 219
Greenhalgh, E.A. 317
Green, P.G. 275
Greim, H, 23
Griffioen, P.S. 33

Heilmaier, H.E. 23
Hirokawa, M. 1
Hochrainer, D. 219

Iguchi, T. 1

Jiang, J.L. 23

Kane, A. 233
Kasprzak, K.S. 57
Keller, K.A. 171
Khan, S. 131
Kitchen, I. 275
Klaassen, C.D. 111
Klöppel, H. 219
Kranauskas, A.E. 77
Kravchenko, L.V. 77

Lahiri, P. 245
Legrum, W. 281
Lewandowski, E.M. 183

Maitani, T. 121
Malick, M.A. 157
Mason, J. 99
Moldeus, P. 13
Montesissa, C. 69
Murray, M. 205

Oldiges, H. 219
Orrenius, S. 13

Parmar, D. 47
Payne, J.F. 131
Pompa, G. 69
P'an, A.Y.S. 157

Rahimtula, A.D. 131
Rahman, A.M. 131
Redegeld, F.A.M. 259
Ridings, J. 291
Röschenthaler, R. 233

Schramel, P. 23
Seth, P.K. 47
Singh, A.K. 143
Snyder, C.A. 171
Srivastava, S.P. 47
Stacey, N.H. 85
Summer, K.H. 23
Suzuki, K.T. 121

Takasugi, N. 1
Tiffany-Castiglioni, E. 303

Tran, M.B. 195
Tutelyan, V.A. 77

van Bree, L. 259
van Hameren, P. 33
van Leeuwen, C.J. 33
Vasilyev, A.V. 77

Waalkes, M.P. 57
West, W.L. 195

Zmudzki, J. 303

Toxicology, 42 (1986) 345—347
Elsevier Scientific Publishers Ireland Ltd.

TOXICOLOGY

CONTENTS
Volume 42 (1986)

Occurrence of genital tract abnormalities and bladder hernia in female mice exposed neonatally to tamoxifen (Lesions found included uterine hypoplasia, myometrial involution, vaginal hypoplasia, hypospadia and urinary bladder hernia)
by T. Iguchi, M. Hirokawa and N. Takasugi (Yokohama, Japan) ..... 1—11

On the mechanisms of glutathione depletion in hepatocytes exposed to morphine and ethylmorphine (Both drugs deplete intracellular glutathione and from glutathione conjugates)
by L. Eklöw-Låstbom, P. Moldeus and S. Orrenius, (Stockholm, Sweden) .. 13—21

D-Penicillamine induces rat hepatic metallothionein (D-Penicillamine raises metallothionein and zinc levels in liver)
by H.E. Heilmaier, J.L. Jiang, H. Greim, P. Schramel and K.H. Summer (Neuherberg, F.R.G.) ..... 23—31

Uptake, distribution and retention of zineb and ziram in rainbow trout (*Salmo gairdneri*) (The tissue distribution of both fungistatics is described)
by C.J. Van Leeuwen, P. Van Hameren, M. Bogers and P.S. Griffioen (Lelystad and Utrecht, The Netherlands) ..... 33—46

Effect of di(2-ethylhexyl)phthalate (DEHP) on spermatogenesis in adult rats (Spermatogenesis is decreased and certain testicular enzyme activities change)
by D. Parmar, S.P. Srivastava and P.K. Seth (Lucknow, India) ..... 47—55

Effects of magnesium acetate on the toxicity of nickelous acetate in rats (Magnesium acetate decreases lethality of nickel acetate by altering the pharmacokinetics of nickel(II))
by K.S. Kasprzak, M.P. Waalkes and L.A. Poirier (Frederick, MD) ..... 57—68

The metabolism of zearalenone in subcellular fractions from rabbit and hen hepatocytes and its estrogenic activity in rabbits (There are species differences in the reductive metabolism of the estrogenic mycotoxin)
by G. Pompa, C. Montesissa, F.M. Di Lauro and L. Fadini (Milan, Italy) ... 69—75

Biochemical changes in subacute mycotoxicosis induced by T-2 toxin in rats (T-2 toxin decreases many catabolic enzymes and increases conjugases)
by L.V. Kravchenko, V.A. Tutelyan, A.V. Vasilyev, A.E. Kranauskas and L.I. Avrenyeva (Moscow, U.S.S.R.) ..... 77—83

The amelioration of cadmium-induced injury in isolated hepatocytes by reduced glutathione (Extracellular GSH decreases loss of potassium and enzymes and also lowers the cadmium content)
by N.H. Stacey (Sydney, Australia). ..... 85—93

Contents of journal relating to Toxicology ..... 95—96

Announcement 97

Review Paper

Thiomolybdates: Mediators of molybdenum toxicity and enzyme inhibitors
By J. Mason, (Dublin, Ireland) ..... 99—109

Research Papers

Cadmium uptake by rat red blood cells (**Cd uptake into erythrocytes occurs by passive transport and is modulated by membrane sulfhydryls**)
by M. Garty, W.M. Bracken and C.D. Klaassen (Kansas City, KS) . . . . . 111—119

Effect of cadmium on essential metal concentrations in testis, liver and kidney of five inbred strains of mice (**C3H/He, BALB/c and C57BL/6 mice are sensitive to Cd hepatotoxicity and DBA/2 and CBA/J mice to testicular toxicity**)
by T. Maitani and K.T. Suzuki (Ibaraki, Japan) . . . . . 121—130

Mechanisms of petroleum hydrocarbon toxicity: Studies on the response of rat liver mitochondria to Prudhoe Bay crude oil and its aliphatic, aromatic and heterocyclic fractions (**The aromatic components of the crude oil inhibit mitochondrial respiration and oxidative phosphorylation**)
by S. Khan, A.M. Rahman, J.F. Payne and A.D. Rahimtula (St. John's NF, Canada) . . . . . 131—142

Kinetic analysis of acetylcholinesterase inhibition by combinations of acephate and methamidophos (**Acephate pre-exposure provides protection against inhibiton of acetylcholinesterase by methamidophos**)
by A.K. Singh (St. Paul, MN) . . . . . 143—156

Segmental and intracellular distribution of lead in rat kidney and salivary glands (**In renal proximal tubules lead accumulates mostly in the nuclear fraction and in salivary glands in the cytosol**)
by A.G. Craan, M.A. Malick and A.Y.S. P'an (Quebec, Canada) . . . . . 157—170

Mice exposed in utero to low concentrations of benzene exhibit enduring changes in their colony forming hematopoietic cells
(**In utero exposure to low concentrations of benzene induces alterations of the hematopoietic system which persist into adulthood**)
by K.A. Keller and C.A. Snyder (Tuxedo, NY) . . . . . 171—181

The toxicity of tetrahydrobiopterin: Acute and subchronic studies in mice (**Tetrahydrobiopterin at 200 mg/kg causes acute renal tubular necrosis**)
by E.M. Lewandowski, A.B. Combs and K. Folkers (Austin, TX) . . . . . 183—194

A comparative study of the reproductive effects of methadone and benzo[*a*]pyrene in the pregnant and pseudopregnant rat (**Benzo[*a*]pyrene at 50 mg/kg reduces uterine weight and cyclic nucleotide levels**)
by Q.Q. Bui, M.B. Tran and W.L. West (Washington, D.C.) . . . . . 195—204

Effects of primaquine on hepatic microsomal haemoproteins and drug oxidation (**In vivo treatment of rats with primaquine lowers total hepatic microsomal *P*-450 and other mixed function oxidase activities**)
by M. Murray and G.C. Farrell (Westmead, Australia) . . . . . 205—217

Carcinogenicity of sodium dichromate and chromium (VI/III) oxide aerosols inhaled by male wistar rats (**Extended exposure to chromium aerosols is necessary to produce a weak carcinogenic effect**)
by U. Glaser, D. Hochrainer, H. Klöppel and H. Oldiges (Schmallenberg-Grafschaft, F.R.G.) . . . . . 219—232

Changes in urinary and renal tubular enzymes caused by subchronic administration of ochratoxin A in rats (**Increased enzymuria suggests tubular damage which is reversible**)
by A. Kane, E.E. Creppy, R. Röschenthaler and G. Dirheimer (Strasbourg, France and Münster, F.R.G.) . . . . . 233—243

Effect of lindane on eggshell characteristics and calcium level in the domestic duck (**Lindane produces thinning and reduced conductivity of duck eggshells**)
by S. Chakravarty and P. Lahiri (Calcutta, India) . . . . . 245—258

The 3-methylcholanthrene-mimetic effect of 4,4'-dichlorobiphenyl-treatment of phenacetin-induced hepatic glutathione depletion and liver microsomal phenacetin *O*-deethylation in rats (There are complex interrelations between cytochrome *P*-450 induction and GSH depletion)
by L. van Bree, F.A.M. Redegeld and J. de Vries (Amsterdam, The Netherlands) . . . . . 259—274
Di-isopropylfluorophosphate induced antinociception and its interactions with opioid drugs in the rat (In the paw pressure test DFP interacts in an unexplained way with analgesics)
by P.G. Green and I. Kitchen (Guildford, U.K.) 275-280
The mode of reduction of vanadate(+V) to oxovanadium(+IV) by glutathione and cysteine (Vanadate is reduced in vitro by thiols with formation of a spectrally demonstrable intermediate)
by W. Legrum (Marburg, F.R.G.) . . . . . 281—289
Teratogenicity in rats of two dopaminergic agonists (Teratogenic effects of the dopaminergic benzopyrans are partially reversed by pimozide)
by J. Baldwin and J. Ridings (Stock, U.K.) . . . . . 291—2 302
Cellular targets of lead neurotoxicity: In vitro models (In vitro, oligodendroglia is sensitive to lead treatment whereas astroglia and meningeal fibroblasts are resistant)
by E. Tiffany-Castiglioni, J. Zmudzki and G.R. Bratton (College Station, TX) . . . . . 303—315
The effect of chlordane and rotenone on the alimentary tract of the field cricket (The two stomach poisons have common effects on fat body, caecal lining and malpighian tubules)
by E.A. Greenhalgh (Ontario, Canada) . . . . . 317—330
Contents of Journals relating to Toxicology . . . . . 331—335
Subject Index Volume 42 . . . . . 337—341
Author Index Volume 42 . . . . . 343—344
Volume Contents Volume 42 . . . . . 345—347